

Work Order ID 86692

\*86692\*

Page 1

July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals:

Process Plan:

Date: 2-07-1

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start \*NR1\*

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D206-667-141

Rev C (DEO)

DSI9565

A

100

\*100\*

DC

Document Control

DOCUMENT CONTROL

Memo

Photocopy bluefile and create labels as per PPP D206-667-101 CHG004

0.00

0.00

0.00

0.00

110

\*110\*

Packaging

Packaging

Packaging

Memo



MLJ 12-7-26

Pto

12-7-16

W/O: 86692		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-667-101 PAR #: \_\_\_\_\_ Fault Category: X - tube NCR: Yes ☐ No ☒ DQA: Auto Date: 12/08/02  
 Resolution: \_\_\_\_\_ Disposition: use as is QA: N/C Closed: OK Date: 12/8/02

NCR: 12-1643		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12.07.16	120	CRUSHING AFTER BENDING IS OVER TOLERANCE. Height is over tolerance. RC BENDING	CP 12.07.16	Acceptable per attached SR.	N/A	 12/07/16	CP 12.07.16	 12/7/16

NOTE: Date & initial all entries

Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Crosstube Fwd  
 Start Date: 7/06/12 Start Qty: 1.00 \*1\* Cust Item ID:  
 Required Date: 8/17/12 Req'd Qty: 1.00 \*1\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	BENDING MACHINE - CROSSTUBES	0.00							
*120*									
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	Bend tube as per Dwg D206-667-141 using CNC bender program 206B-fw and Folio FT _____								
130	QC15- Crosstube Dimensional Check	0.00							
*130*									
QC	Memo	0.00							
Quality Control									

12-7-10

DAS 16

12/16/16

70

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 86692****\*86692\***

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Crosstube Fwd

Start Date: 7/06/12

Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 8/17/12

Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00

**\*140\***

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill holes &amp; ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-141. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-141. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-141. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-141. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-141. Allow rivet to sit below surface to compensate for paint.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-141 Inside of Cuff (Do not engrave on outside of tube)

10-\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSTUBE\*\*\*  
Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-141MO  
RM

12-7-17

MO, 12-7-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Crosstube Fwd  
 Start Date: 7/06/12 Start Qty: 1.00 \*1\* Cust Item ID:  
 Required Date: 8/17/12 Req'd Qty: 1.00 \*1\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	0.00  0.00							
160 *160* HandFXtube Hand Finishing Crosstubes	HandFXtube Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***  1- CLEAN CROSSTUBE WITH WASH'N WIPE	0.00  0.00							
180 *180* Outsource2 Outsource process - NDT	Outsource process - NDT per QSI038 4.1  Memo *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***  Liquid Penetrant Inspection as per QSI 038Or Issue P/O: 17504 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00  0.00							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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190

0.00

\*190\*

Packaging

Packaging

Memo

0.00

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O

0.00

\*200\*

QC

Memo

0.00

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Inspect for damage & ensure results are as per Dwg D206-667-103

202

0.00

\*202\*

HandFXtube

Memo

0.00

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

*12/7/2011*

*12-07-22*

*AS 12-7-20*

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
205	QC7-Inspect Chemical Conversion Coat	0.00							
*205*									
QC	Memo	0.00							
Quality Control	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
210		0.00							
*210*	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	1-Prime inside and outside crosstube as per QSI 005 4.2.1								
	*****Let tube sit up right for 30mins before hanging*****								
	P4500-P-23 Base Batch: 117319								
	P4500-C-23 Catalist Batch: 117319								
	Start time: 8:00	Finish: 9:00							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							
*230*	SprayPaint								
SprayPaint	Memo	0.00							
Spray Painting	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								
	1-Paint outside crosstube with White Imron as per QSI 005								
	4.2								
	Imron 55U white paint	Batch: 122831							
	Imron 125S activator	Batch: 122831							
	Start: 2:00 Finish: 3:00								
240	QC14- Inspect Spray Paint	0.00							
*240*									
QC	Memo	0.00							
Quality Control									

DAS  
16  
9-8

7/10/14

12.07.22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86692

\*86692\*

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	Crosstubes	0.00							
*250*									
Crosstubes	Memo	0.00							
Crosstubes	1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper, clean the area with 4105S wash 'n' wipe								
	2-Install supports with Proseal 890 per DSI9565 and QSI 015 A/R Proseal 890 Batch: <u>122441</u>								
	3- Torque bolts as per dwg								
	3-Install nut plates as per Dwg D206-667-141. Touch-up rivet heads with Imron paint.								
260	QC5- Inspect part completeness to step on W/O	0.00							
*260*									
QC	Memo	0.00							
Quality Control									

AP 12 - 7 - 24

1 17:0726

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Crosstube Fwd  
 Start Date: 7/06/12 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 8/17/12 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	Pick Kit	0.00							
<b>*270*</b>									
Packaging	Memo	0.00							
Packaging									
280	QC4- 100% Inspect kits for completeness	0.00							
<b>*280*</b>									
QC	Memo	0.00							
Quality Control									
290		0.00							
<b>*290*</b>									
Packaging	Packaging	0.00							
Packaging	Memo								
Packaging	Identify and pack for shipping as per PPP D206-667-101								
	Location: <u>66063</u>								
	PPP Rev: <u>NEW PE</u>								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 86692

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July-06-12 11:33:41 AM

Item ID: D206-667-101

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Crosstube Fwd

Start Date: 7/06/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 8/17/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
300	QC21- Final Inspection - Work Order Release	0.00							
<b>*300*</b>									
QC	Memo	0.00							
Quality Control									

12/1/300  
MF  
12-09-27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

July-06-12 11:33:39 AM

Page 1

Work Order ID: 86692  
Parent Item: D206-667-101  
Parent Item Name: Crosstube Fwd

Start Date: 7/06/12  
Start Qty: 1.00

Required Date: 8/17/12  
Required Qty: 1.00

Comments: IPP Rev:F05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM  
IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec  
IPP Rev:H 08-07-28 update as per (par 08-013) DD verified by:EC  
IPP Rev J 09.01.06 Per ECN 08-562 EC verified by:DD IPP REV:K 11.08.05 PFR ECN  
11-615 DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
8 AN5-30A BOLT		Purchased	No			270	Each	115.0000	4	4	5/1		
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST339		115							
				117514		7							
				120423		3							
				120910		25			7				
				121259		30							
				122141		50							
8 AN5-32A Bolt		Purchased	No			270	Each	277.0000	4	4	5/1		
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST339		177							
				119862		2							
				120423		75			4				
				122151		100							
				ST340		100							
				121541		100							
8 AN5-7A Bolt		Purchased	No			270	Each	2,564.0000	10	10	5/1		
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST337		2564							
				119017		2564			10				
8 AN960JD516 Washer	NAS1149D0563J	Purchased	No			270	Each	12.0000	18	18	11/19/546	12/7/26	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST338		12							
				2612		12							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

July-06-12 11:33:40 AM

Page 2

Work Order ID: 86692  
Parent Item: D206-667-101  
Parent Item Name: Crosstube Fwd

Start Date: 7/06/12  
Start Qty: 1.00

Required Date: 8/17/12  
Required Qty: 1.00

D2873-043 Nut Plate Assembly Manufactured No 250 Each 80.0000 2 2 AS 12-7-24

Location	Loc Qty	Loc Code
LG052	80	
72644	2	
82949	38	
84386	40	

D2873-045 Nut Plate Assembly Manufactured No 250 Each 33.0000 2 2 AS 12-7-24

Location	Loc Qty	Loc Code
LG052	33	
82947	33	

D2891-1 2.25 Support Manufactured No 250 Each 37.0000 2 2 AS 12-7-24

Location	Loc Qty	Loc Code
LG051	20	
84164	20	
LG052	17	
72822	1	
75176	1	
82277	15	

D3595-063-395 RUBBER CUSHION Manufactured No 250 Each 46.0000 4 4 AS 12-7-24

Location	Loc Qty	Loc Code
LG051	46	
82223	46	

July-06-12 11:33:40 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

July-06-12 11:33:40 AM

Page 3

Work Order ID: 86692  
Parent Item: D206-667-101  
Parent Item Name: Crosstube Fwd

Start Date: 7/06/12  
Start Qty: 1.00

Required Date: 8/17/12  
Required Qty: 1.00

MS20601-AD4W8  
RIVET

Purchased No

250 Each 244.0000

14

14

AB 12-7-24

Location	Loc Qty	Loc Code
LG051	33	
121017	33	
ST314	200	
121827	100	(14)
122141	100	
ST322	11	
121255	11	

MS21042L5  
Nut

Purchased No

270 Each 1,218.0000

4

4

Location	Loc Qty	Loc Code
300	500	
121652	500	
ST300	718	
108827	4	
116105	5	Y
116548	43	
119109	654	
17651	4	
2937	8	

MS21920-20  
Clamp (per MIL-DTL-8783C)

Purchased No

270 Each 127.0000

4

4

AB 12-7-24

Location	Loc Qty	Loc Code
LG050	127	
116799	8	
120676	8	
121067	2	
121274	34	(4)
122254	75	

July-06-12 11:33:40 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

July-06-12 11:33:40 AM

Page 4

Work Order ID: 86692

Parent Item: D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 7/06/12

Required Date: 8/17/12

Start Qty: 1.00

Required Qty: 1.00

D206-667-101TRN

Manufactured No

110 Each 2.0000

1

Crosstube Turning Detail

*Handwritten:* 12-7-16

Location

Loc Qty

Loc Code

LG

2

84018

1

84019

1

*Handwritten:* 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

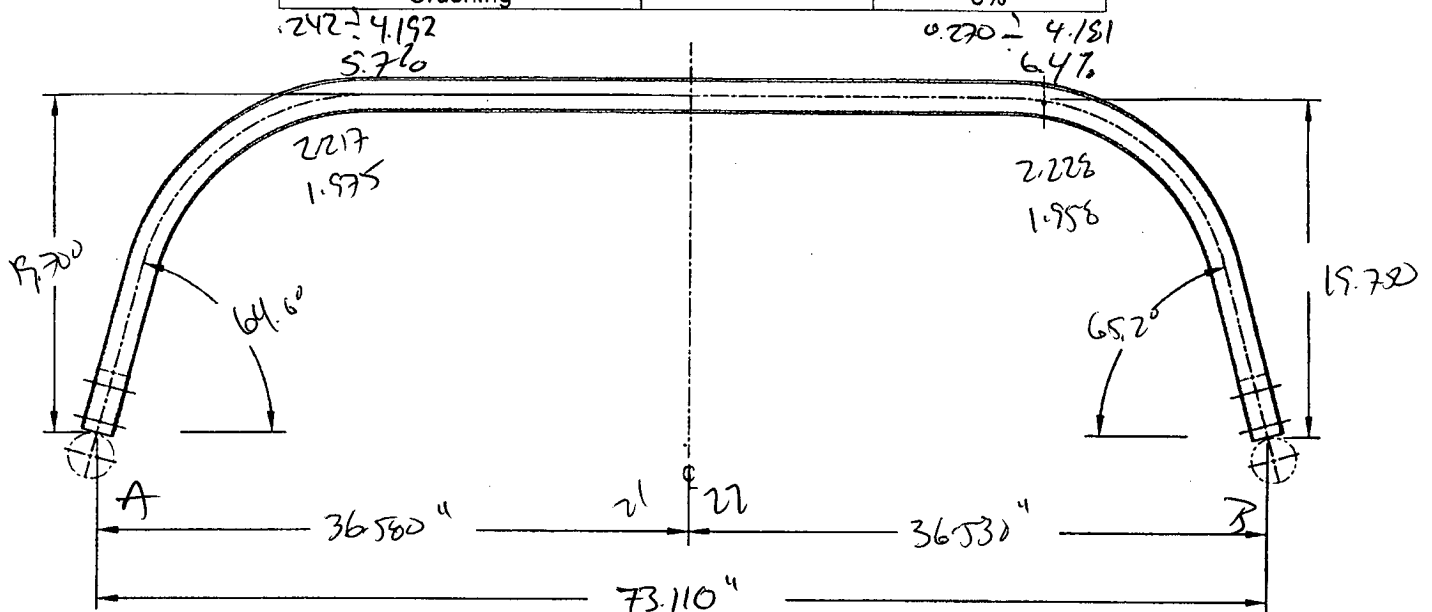
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> <i>86692</i>
<b>Description:</b> Crosstube High Fwd (206B)		<b>Part Number:</b> D206-667-101
<b>Inspection Dwg:</b> D206-667-141	<b>Rev:</b> C	<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	19.41	19.67
1/2 Span	36.47	36.73
Angle	65	67
Total Span	72.94	73.46
Bending Passes	12	--
Crushing	--	6%



	Side A	Side B
Bending Passes	21	22
Crushing	5.76	6.47
Comments		

QC15 Inspection	<i>DAS</i>
Date	<i>16/08/07</i> See D16 Page 41

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.07.30	Dimensions revised per Dwg Rev C	KJ	
C	12.04.16	Added bending, crushing dimensions	KJ	<i>up</i>

Item	Qty -141	Part Number	Description
1	X	D206-667-141	CROSSTUBE ASSEMBLY (206B HIGH FWD)
2	1	D6001-105	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6001-105  
FINISHED LENGTH = 93.18±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 11.3 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 386692

DEO ATTACHED

OCW#11-615  
11.07.26

UNDER REVIEW

RELEASED  
08/11/12/14/15

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN C4-3, C5-3 & D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D206-667-141	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASS'Y (206B HIGH FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

8 7 6 5 4 3 2 1

D

D

C

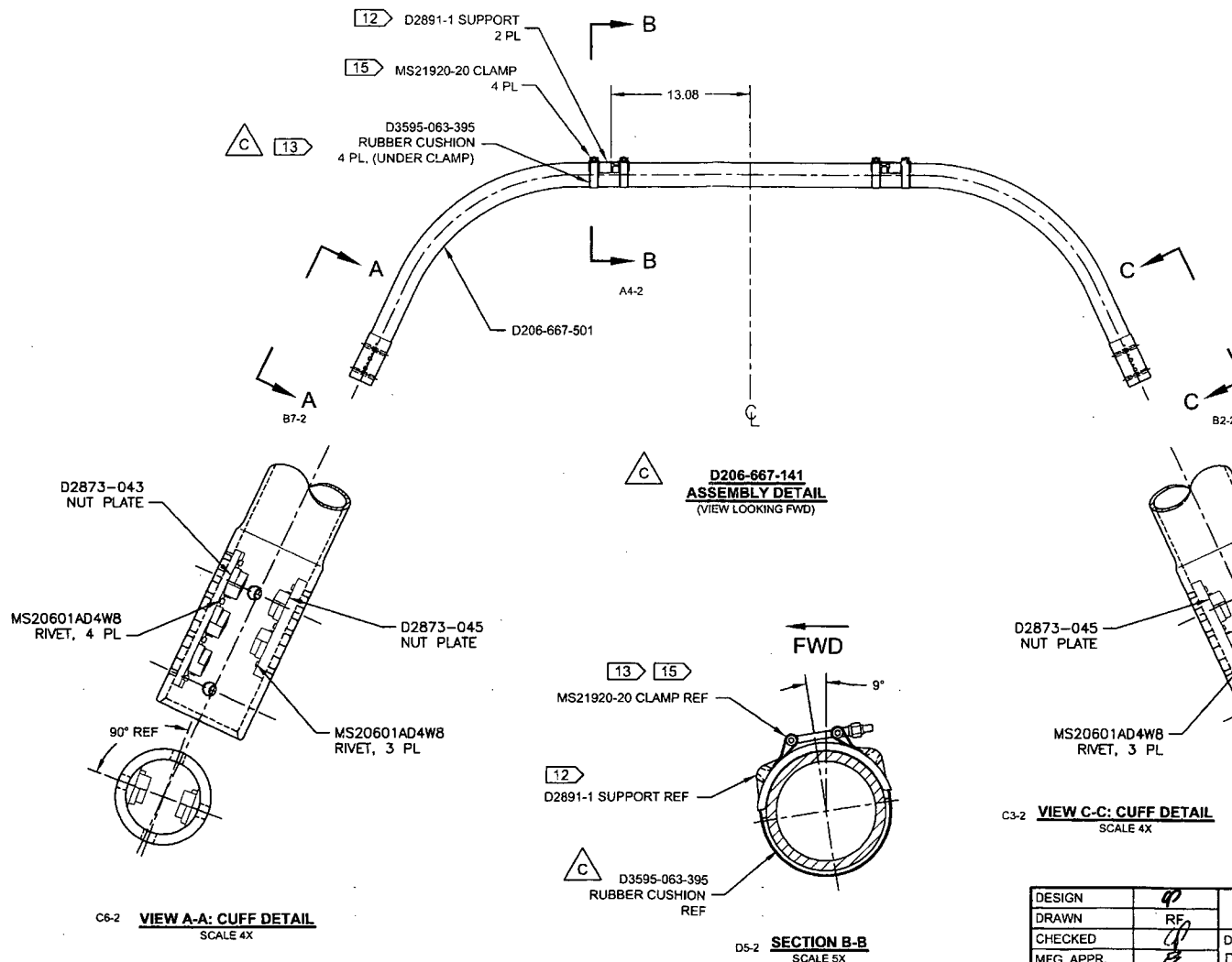
C

B

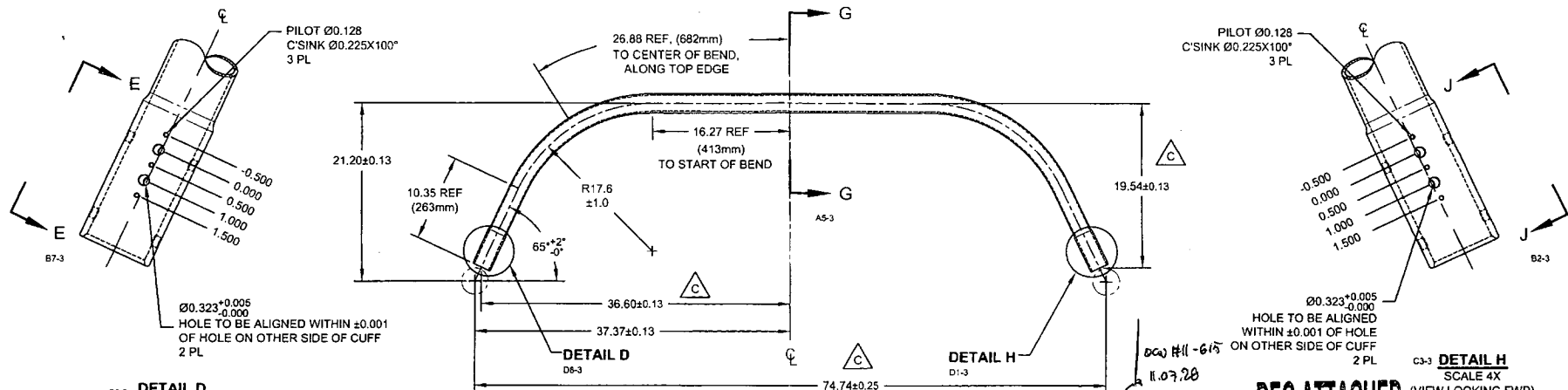
B

A

A



DESIGN	4P	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	4P	DRAWING NO.	REV. C
MFG. APPR.	4P	D206-667-141	SHEET 2 OF 4
APPROVED	4P	TITLE	SCALE
DE APPR.	4P	CROSSTUBE ASS'Y (206B HIGH FWD)	NTS
DATE	08.11.06	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE REPRODUCED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	



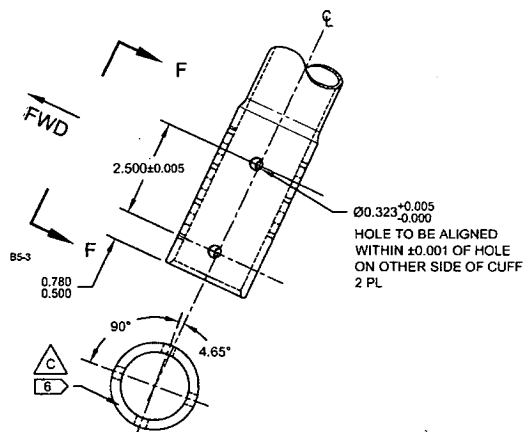
**DETAIL D**  
SCALE 4X  
(VIEW LOOKING FWD)

**D206-667-501**  
**BENDING AND DRILLING DETAIL**  
(VIEW LOOKING FWD)

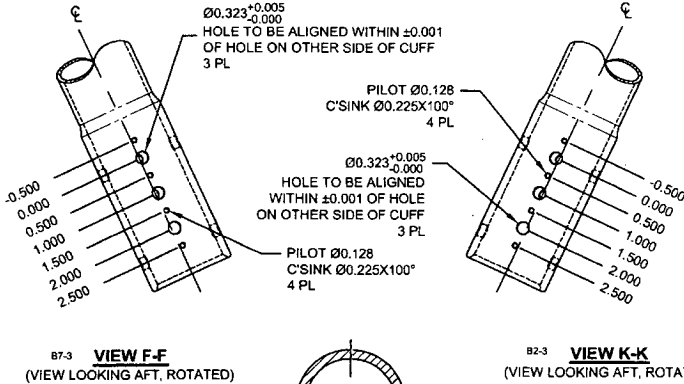
UNDER REVIEW

DEO ATTACHED  
RELEASED  
08/11/2006

**DETAIL H**  
SCALE 4X  
(VIEW LOOKING FWD)

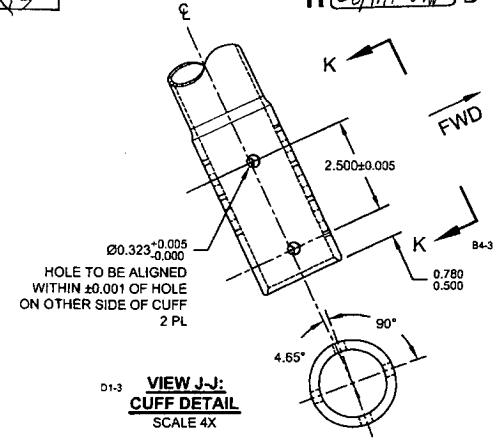


**VIEW E-E:**  
**CUFF DETAIL**  
SCALE 4X

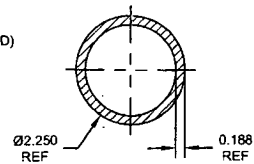


**VIEW F-F**  
(VIEW LOOKING AFT, ROTATED)

**VIEW K-K**  
(VIEW LOOKING AFT, ROTATED)



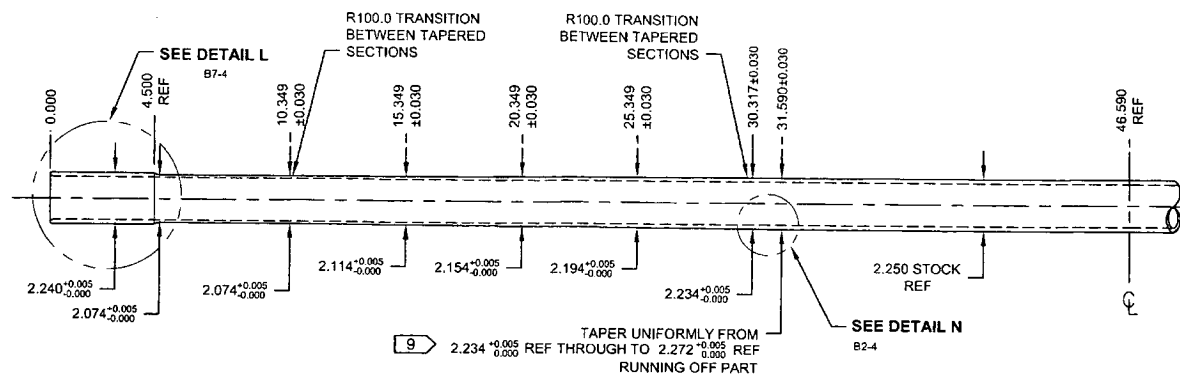
**VIEW J-J:**  
**CUFF DETAIL**  
SCALE 4X



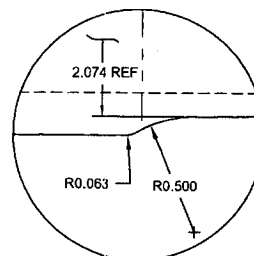
**SECTION G-G**  
SCALE 5X

DESIGN	40	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO.	REV. C
MFG. APPR.	40	D206-667-141	SHEET 3 OF 4
APPROVED	40	TITLE	SCALE
DE APPR.	40	CROSSTUBE ASSY (206B HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2006 BY DART AEROSPACE LTD	
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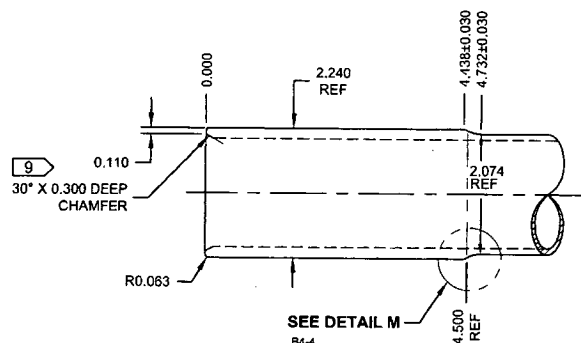




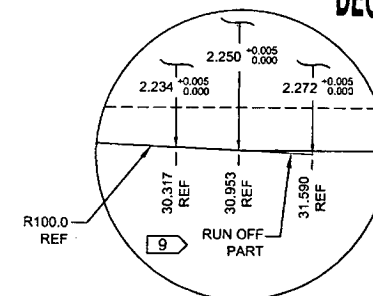
**C TURNING DETAIL**



**DETAIL M:  
CUFF TRANSITION  
NOT TO SCALE**



**DETAIL L:  
CROSSTUBE CUFF  
NOT TO SCALE**



**DETAIL N:  
TAPER RUN-OFF  
NOT TO SCALE**

**RELEASED**  
08/11/12/14

DESIGN	9	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-141	SHEET 4 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (206B HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

BCW#11-615  
11.07.18  
**UNDER REVIEW**  
4/11/26-13

**DEO ATTACHED**

DRAWING NO. D206-667-141	TITLE CROSSTUBE ASS'Y (206B HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-141-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>Q</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>JD</i>	APPROVED <i>MD</i>		DE APPR. <i>HA</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

**PURPOSE:**

REPLACE MAGNOBOND WITH PROSEAL.

**CHANGE:**

**IS:**

Item	Qty -141	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

**WAS:**

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

**IS:**

- 12) TO INSTALL D2891-1 SUPPORT: ABRABE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

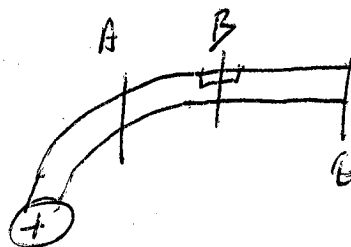
**WAS:**

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

**RELEASED**  
2011-07-28  
*MD*

CRUSHING OF D206-667-101

Acceptability of 8% CRUSHING



Point A:  $OD_1 = 2.238$   $OD_2 = 1.906$   
 $CRUSHING = (2.238 - 1.906) / (2.238 + 1.906) = 8\%$   
 $I = 0.263 \text{ in}^4$  FROM AUTOCAD

Point B:  $OD = 2.250$   $OD_1 = 1.874$   
 $I = 0.653 \text{ in}^4$

A:  $F = M_c / I = P \times 10.8 \times 1.906 / 2 \times 0.263 = 39.13 \cdot P$   
 $= P \times 24.7 \times 2.250 / 2 \times 0.653 = 41.86 \cdot P$

$MS = 41.86 / 39.13 - 1 = 0.06$

So Tube will break at support before area of 8%  
crushing - 8% crushing in area at end of bend  
is acceptable

P. Rozai



## LIQUID PENETRANT TEST REPORT

P- 12202

PAGE 1 OF 1

CLIENT DART Aerospace DATE July 20/12 TIME AM ☒ PM ☐  
ATTENTION ANDY / LINDA ACUREN JOB NO. 188-12-C0285  
ADDRESS 1270 ABELEEN ST. POWO No. 17504  
HANESBURY, ON WORK LOCATION SAVE  
ACCEPTANCE STD. ASTM 1417/OSI REV./DATE 2005  
PROJECT F.P.I. on cross tubes  
ITEM(S) EXAMINED 11 - PCS

JOB DESCRIPTION PROCEDURE No. LT002 REV./DATE 2008 TECHNIQUE No. LT-1042 REV./DATE 2008  
PART NO. SEE RESULTS MATERIAL ALUMINUM THICKNESS VARIOUS  
SCOPE A WET FLOUORESCENT LIQUID PENETRANT EXAMINATION  
WAS COMPLETED ON THE EXTERNAL SURFACE 100%

## TEST DETAILS

METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNAFLUX</u>		BLACK LIGHT S/N <u>16459</u>	<input type="checkbox"/> OUTPUT > 1000 $\mu$ W/cm <sup>2</sup>	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	<u>2467</u>	MINIMUM DWELL TIME <u>45</u> MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE	
PENETRANT REMOVER	<u>H2O</u>	MINIMUM DRY TIME <u>&gt;10</u> MIN.	OTHER <u>LABINO</u>		
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME <u>10</u> MIN.	LIGHT METER S/N <u>1098866</u>	CAL DUE DATE <u>July 2012</u>	
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY				

## TEST SURFACE

SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F		<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input checked="" type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F

RESULTS- ☒ METRIC ☐ IMPERIAL

CROSS TUBE V.O.				ENGINEERING REQUEST - NCR WAS ORIGINALLY NOT ON TUBE 12/21 Refut P-10159.	
1	"	85877	✓		
1	"	86693	✓		
1	"	86692	✓		
1	"	84764	✓		
1	"	86932	✓		
1	"	87329	✓		
1	"	87328	✓		
1	"	85315	✓		
1	"	85316	✓		
1	"	85317	✓		
1	"	85318	✓	120722	

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE <u>Andy Sheldon</u> PRINT	<u>AS</u> SIGNATURE	DTR # <u>E117389</u>
TECHNICIAN (SIGNATURE): <u>Mike Sheldon</u>		REPORT REVIEWED BY:
NAME (PRINT): <u>Mike Sheldon</u>	1 <sup>ST</sup> TECHNICIAN	NAME INITIALS
CGSB LEVEL <u>#</u> SNT LEVEL	CGSB LEVEL SNT LEVEL	
CGSB REG. No <u>6606</u>	CGSB REG. No	